THE VETERINARY RECORD

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 45. NOVEMBER 7, 1942 VOL. 54.

The Local Application of Sulphonamides*

A. J. MACLENNAN, B.SC., M.R.C.V.S.,

EDINBURGH

About 18 months ago I commenced using sulphonamide powder as a wound dressing on one or two of the many "accident" cases in small animals we meet with in the Surgical Ward at the Royal (Dick) Veterinary College. Results were quite favourable, and as local sulphonamide therapy became more prominent in the medical world I used it on all types of conditions, with remarkable success in some cases. I have used all preparations of sulphonamide, but as I have been more interested in the antiseptic action of the pure drug itself, most of my remarks will be concerned with the use of powdered sulphonamide.

To illustrate the value of this drug adequately and yet briefly I will describe its use in practice under two headings :—

(1) In the prevention of infection.

(2) In cases of established infection.

(1) *In the Prevention of Infection*

In surgical wounds I endeavour to carry out strict asepsis, and in nearly all cases, if the wound can be well protected after the operation, healing normally takes place by first intention. Occasionally, however, there is a predisposition to the entrance of infection. This is liable to occur when a very extensive skin incision is employed ; more often than not in removing tumours from two, three or more mammary glands in the bitch, or when a chronic suppurative focus has to be completely excised. By lightly dusting powdered sulphonamide on the wound surface prior to suturing, the chances of uninterrupted healing are increased.

In accidental wound cases, and this includes both incised and lacerated wounds, I make it a routine practice to apply sulphonamide. Cases treated within 12 hours of the accident, before infection has had time to diffuse into the tissues, respond best, because the drug most effectively prevents bacterial multiplication on the wound surface. The surrounding hair should be closely clipped and a thorough surgical toilet carried out ; all pieces of badly lacerated skin and loose tissue, likely to be necrosed, should be snipped off. I then clean up the wound surface with some mild cleansing agent, *e.g.*, antiseptic soap and water, or 2½ per cent. solution of dettol and water ; dry with a sterile gauze pad and then lightly dust finely powdered sulphonamide on to the wound surface with a gauze pad, suture up in the usual way, and treat as an aseptic wound. It should be emphasised that the minimum quantity of sulphonamide in a finely powdered form should be applied to the wound surface, otherwise a mild inflammatory reaction will result, due to the excess powder acting as a foreign body causing irritation.

Where wounds are severely lacerated I allow for drainage by inserting a sterile gauze pack dusted with the powder. Sutures often remain completely intact, and any discharges are bland, non-offensive and rapidly clear up on renewed application of the drug.

In compound fractures I have used sulphonamide only in one or two cases involving small bones, such as the metacarpals and digits where no permanent splint was applied, and in one fractured tail in a cat. These were dealt with similarly to lacerated wounds ; healing was progressive, suppuration reduced to a minimum and the condition rapidly cleared up. In cases involving the long bones, although one cannot promise success, I feel that in conjunction with the treatments we already employ, sulphonamide forms the most formidable barrier against infection that we have at our disposal.

In one case of an "open" fetlock joint in a hunter, in addition to bubbing in hot water, a 10 per cent. suspension of sulphonamide in glycerin was painted over the wound and recovery was complete. No value can be placed upon a single case, but in view of its pharmacology sulphonamide is indicated to protect against the entry of infection.

(2) *In Cases of Established Infections*

In local infections, whether specific or merely due to the common pyogenic organisms, I have noticed that the results obtained have not been spectacular. I do not suggest that the "bacteriostatic" qualities of the drug are lacking in any way, but that in these cases certain factors are present which definitely hinder its efficiency, the most important being the presence of pus and necrotic tissue in the lesion.

However, in spite of these drawbacks the use of sulphonamide is indicated in many septic cases, particularly neglected wounds, which should be bathed in eusol for three to five minutes to clean up discharges and hasten the separation of any necrotic tissue. I then carefully apply sulphonamide powder, cover with moist saline swabs to keep the tissues moist and to aid the stamping out of infection by capillarity and osmosis. Repeat daily until the wound shows a healthy surface, which is usually in three to five days at the outside. If cases show signs of inflammatory fever, then local treatment is supplemented by the use of sulphonamide orally or by injections.

In cases of simple granulating wounds I find an emulsion of sulphonamide a very effective emollient dressing, but its antiseptic value is much less than that of the actual drug itself.

Simple abscesses, once they rupture or are incised, generally heal spontaneously and the use of sulphonamide can merely be considered as a supplement to nature's healing process. Septic conditions of the foot in the horse fall into a similar category, and if surgical interference is radical the tissue repair is unmarred by any complications. I have not yet tried sulphonamide in canker of the horse's foot, but I feel that following operation it might be applied to the exposed matrices to prevent secondary infection and ensure a more rapid recovery.

For some time now, I have used sulphonamide pessaries following removal of the foetal membranes in the cow, these pessaries being made by simply filling 9 drachm gelatin capsules with the drug. I usually insert two capsules following the removal of the membranes. Results are difficult to assess due to the varying degrees of infection and sepsis met with, but once again where necrotic material is left in the uterus even in reasonably small amounts, I feel the antiseptic properties of the drug are wasted.

In chronic endometritis, in large or small animals, I do not think the local application of the drug is of any value whatsoever.

In burns and scalds I find the majority of cases are not brought in for treatment until the stage of sepsis has commenced, marked by sloughing of the superficial layers of the skin and matting of the hair with discharges. These sloughs, after being softened with moist saline swabs, are removed and the underlying raw areas dressed with an emulsion of sulphonamide and cod-liver oil, which forms a protective layer on top of the underlying delicate granulations. Powdered sulphonamide tends to be rather irritant in these cases.

Small animal practice offers many opportunities for using sulphonamide to advantage. Acute otitis cases with discharge and ulceration respond remarkably after cleaning out the ears with 20 per cent. eusol and applying the powdered drug. After daily treatment for five to seven days a permanent cure results in many cases. In chronic otitis, local applications are of little value, but when such ears are surgically opened up, it is a valuable drug to control the offensive odours and discharge met with in many of these cases two to three days following operation. Both sulphonamide emulsion and a 10 per cent. suspension of sulphonamide in glycerin are very useful ear dressings.

Wide-spread interdigital cysts in dogs, where secondary infection has gained a hold, with the production of these so-called "spongy" feet (which ooze pus from every interdigital space) have always been a serious problem. After completely exposing all the affected areas on each foot sulphonamide has been of value in completely eradicating the infection in two cases treated, where all four feet were affected. In cellulitis cases in cats similar benefit has been seen. Once again the whole infected area must be laid bare, cleaned up, and the powder applied. After two or three daily dressings many cases heal up rapidly under a scab.

In dealing with skin diseases in dogs I should like to mention I have tried out this drug in eczema cases. Results have been quite good in many instances, but I would hesitate to recommend its superiority over other recognised skin dressings. A paste with liquid paraffin incorporated is a very suitable preparation for skin application.

To sum up, I have found that the real value of local sulphonamide therapy lies, not in its ability to conquer infection, but rather that in view of its bacteriostatic properties it fortifies the body defences against any local infection which may flare up due to local damage or interference. In established infections its antiseptic value is doubtful.

(*Concluded at foot of col.* 1, *page* 474)

*Presented to the Scottish Metropolitan Division, N.V.M.A., Dundee, June 10th, 1942.

Observations on Common Methods of Castration*

J. F. WATSON, M.R.C.V.S.,
Milnathort

1. Horse.—The standing method seems to be ideal for castrating the normal colt. As a routine procedure I think it a wise plan to place a shield across the eyes (a rough towel serves the purpose admirably). This greatly reduces excitability, and in cases of viciousness even although the animal does strike out its aim is never so accurate. I prefer to deal with each testicle from its corresponding side, because I believe by so doing the testicle can be drawn right down into the scrotum so as to tense the skin as much as possible before making the incision. In this way, too, the opening has a better chance of being at the most pendant part of the sac, thereby facilitating subsequent drainage.

After the testicle has been liberated I have formed the habit of giving the organ and cord one complete turn, so that the vascular and non-vascular parts of the cord are drawn into close apposition with one another. This, I believe, enhances the cutting-crushing action of the emasculator.

In 80 per cent. of the yearlings I have castrated, no matter how firmly the emasculator is squeezed, I find that the testicle and distal portion of the cord do not become detached. In such cases I have adopted a modified torsion process, *i.e.*, I hold the closed instrument with one hand and gradually screw the testicle round with the other until it becomes detached from the closed distal surface of the emasculator. This is preferable, in my opinion, to tearing the whole thing away from the emasculator. The amount of twisting varies from one-half turn to two or three turns in two-year-olds.

For stallions, casting is necessary. I have formed the habit of severing the non-vascular part of the cord with the emasculator and then using a torsion clam and forceps to sever the artery. Undressed, ash-wood clams give quite good results for three-, four- and five-year-old animals. No twisting of the cord is necessary in such cases before inserting it into the jaws of the clams. To close the latter the jaws of the forceps should be placed at a point just behind the position to be occupied by the ferrule. It is best, I think, to allow the clams to drop off. The subsequent suppurative process is more marked by this method.

2. Cattle.—For animals up to a year old traction appears to be ideal. Suckled calves are much more difficult to control and a large bold incision is necessary to liberate the testicle completely because the substance is soft and "buttery" and just melts among your fingers if you begin to manipulate the part. When using traction on the ductus deferens and artery apply a gentle steady pull to commence with, gradually increasing the tension, otherwise a "ruptured break" occurs rather than a "tearing break." The former, in my opinion, predisposes to haemorrhage, not necessarily fatal.

One case which came under my observation was a 15-month-old bull which had been castrated by a butcher several days previously. There had been no haemorrhage from the scrotal wounds; instead the blood had accumulated at the neck of the scrotum and extended along the ventral aspect of the abdomen to the fore-legs. The extent and weight of this haematoma had caused eversion of the prepuce and protrusion of the penis, from which urine was dropping occasionally. The animal appeared to be in considerable pain, and a rectal examination revealed a marked distortion of the bladder. The immediate cause of death was uraemic poisoning following rupture of the bladder.

For animals a year old, I find it is better to cast them and use the torsion method.

I am frequently asked to operate on animals which have been previously interfered with by the Burdizzo. The ignorance which seems to exist regarding the use of this instrument is really astonishing. Cases to which I have been called have varied from a halving of the testicle, to the neck of the entire scrotum being crushed in the jaws of the instrument.

Such cases are better cast, I find, owing to the presence of adhesions and often an increased vascularity. The incision I have adopted is a "U"-shaped one round the apex of the sac instead of the straight opening parallel to the septum. Complete enucleation of the testicle is thereby facilitated together with a sufficient length of cord.

Adhesions can usually be overcome by tearing with one's fingers, but occasionally scissors are necessary. It is wise, I think, to complete the operation by torsion on account of the difficulty of stripping up the cord. The U-shaped incision facilitates good drainage which is essential on account of the likely formation of pockets of matter because of the existence of excess fibrous tissue.

3. Sheep.—I have had no experience in the castration of rams, which are supposed to be very sensitive to ordinary methods of castration. The Burdizzo, properly used, is said to give good results. A small pair of traction forceps is handy for castrating lambs.

4. Goats.—These animals appear to be particularly sensitive to ordinary methods of castration, and an aseptic technique is especially required. Rupture of the vascular portion of the cord, by traction, seems to have the desired effect in kids. It is wise to apply tincture of iodine to the scrotum before commencing and to introduce a little Bipp into each wound.

5. Swine.—Traction, of course, is ideal in young pigs. With an increase in the pig-rearing industry one is frequently asked to castrate older animals. Make sure that these animals are free from rupture because a fairly large wound is necessary in large animals. The cord, I find, in old pigs, is somewhat brittle and easily ruptured near the vascular part if one is not careful with control. A handy method, I adopt, is to run the animal into the open end of a sack and enclose all except the hind limbs. Assistants, on either side, screw up the neck of the sack until it is tightly enclosed round the animal's hind-quarters, which should then be lifted clear of the ground. The testicles in pigs lie with their long axis vertical immediately below the anus. The incision should commence at the lower end of the organ and be carried upwards for 1½ inches. Thereafter squeeze out the organ from above and this brings the cord into view. The latter joins the organ at its distal pole, so that by making a low incision it is easier stripped up, I find, and drainage is facilitated. Traction is quite safe in older pigs, but torsion is certainly more reliable. Adequate bedding should be provided for adult pigs after castration.

6. Dogs.—Castration of the latter is seldom carried out in this country.

7. Cats.—Traction is ideal. In adult animals after rupture of the cord occurs, a piece of fascia variable in size often protrudes through the incision. This should be clipped away, otherwise it may swell slightly and turn reddish-brown in colour, thus causing some concern to a "fussy" owner.

8. Caponizing is not carried out in this country as largely as it might be. It is best, I think, to start with a freshly killed cockerel. No bird should be operated on unless starved completely for 36 hours. This is very important and includes the withholding of water. Eight weeks, in my opinion, is too early an age. Twelve weeks is better, although the set back is said to be greater. The top of a barrel provides a very good operating table, and it is wise to secure the brightest available spot so that the inside of the bird can be observed as clearly as possible. The most important point, in my view, is making the incision, which occurs between the last two ribs. There are seven ribs on either side of the body. They take a backward direction at first, then turn downward and forward to join the breast bone. A simple procedure is to pluck away the feathers, paint the skin with spirit and tense it by pulling it towards the thigh. Make the opening incision about 1 to 1¼ inches, cutting downwards away from the backbone. The peritoneum is observed as a semi-transparent membrane covering the bowels. Tear it carefully with the hook, after inserting the spreader between the ribs.

The testicle is bean shaped and astonishingly small. It lies close to the backbone just ventral to the anterior end of the kidney. Most types of extraction forceps are much too large in proportion to the testicles. These are separated from each other by visceral peritoneum which an expert can penetrate with the hook. After extraction the tensed skin will slip back into position and cover the incision through the abdominal musculature. It is advisable, I think, to remove each testicle through a separate incision until one becomes very efficient.

Do not allow perching until the skin wounds have healed and feed sparingly for a day or two.

A "wind-bag" may develop. Puncture with a pin and allow the air to escape.

General Remarks

Meticulous cleanliness is an essential prelude to castration—particularly when handling colts. There are grave risks of infection,

* Presented to the Scottish Metropolitan Division, N.V.M.A., Dundee, June 10th, 1942.

---

and in many cases success may be due to good surgery rather than copious use of the drug. I feel that once a pyogenic infection has established itself locally, if there are no signs of inflammatory fever or general upset, then nature is dealing adequately with the condition. If, on the other hand, signs of toxaemia or septicaemia are manifest, then sulphonamide given by mouth or by injection is of much greater value. In specific infections we know that sulphonamide is lethal to many organisms in the laboratory, but much work remains to be done to justify its use in the field.

In spite of these critical remarks I do not wish it to be understood that I am sceptical about the antiseptic value of sulphonamide. In fact I feel we are dealing with one of the greatest advances in medical science for years, and we should not say in a defeatist manner, "This stuff is of no use to us," but rather, "How can we use it to greater advantage?"

especially if one has numerous cow "cleansings" dispersed throughout the colt "cutting" season. It is wise to allow a whole day to elapse, if possible, before castrating again, and during this interval repeated disinfection of the hands and arms should be practised, otherwise peritonitis may be a fatal sequel.

If the castration of cattle is carried out in the late spring when the fly is on the wing, steps should be taken to dress the wounds with a reliable fly repellent. This is an important point, unless the "Burdizzo" is used, because cattle in general are much less capable of warding off flies than horses, which can make use of their long tails.

It is not a wise policy to castrate and dishorn cattle at the same time. The double shock to the system is risky, especially in unthrifty animals.

A New Type Vaginoscope*

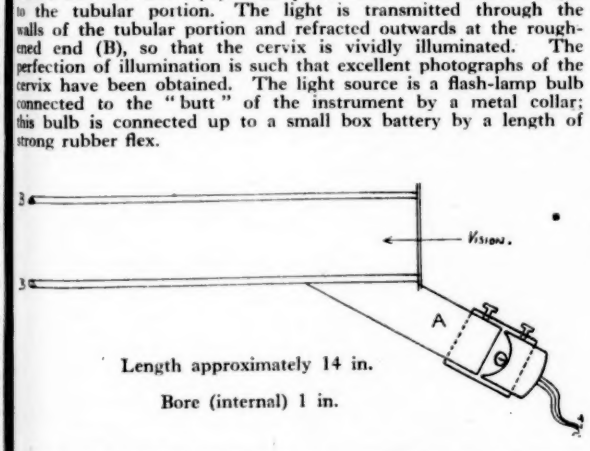
OLIVER G. JONES, M.R.C.V.S.
CAMBERLEY

The function of a vaginal speculum is to bring into vision mucous surfaces and anatomical features normally obscured. A prerequisite of an effective instrument for this purpose is that it should provide an uninterrupted field of vision together with good illumination. The better the illumination the better is the ability of the viewer to judge normal or abnormal conditions of the cervix, vagina and associated tissues.

Recently I have had made a tubular vaginoscope composed of a clear glass-like plastic, which has the trade name of "Curvlite," the patent rights of which are held by I.C.I. This material is sterilisable by all the usual heat methods but has the added advantage that it does not hold the heat for any length of time and can thus be easily handled as soon as it is removed from the steriliser. Most of the common disinfectants have no deleterious action on the material. It must not, however, be disinfected with any of the phenols or phenol derivatives.

This plastic is unbreakable and considerably lighter than glass, but its greatest virtue is its faculty for bending light round corners without the aid of mirrors. This is accomplished by its inner surfaces, which act as the reflecting medium, with the minimum loss of light. Thus a source of light affixed at one end is transmitted round a reasonable curvature and along the substance of the material to the other extremity, where it is refracted outwards by a roughed surface; a similar effect may be obtained with a ground glass bottle-stopper.

Bearing in mind the necessity for uninterrupted vision, the vaginoscope was so designed that its source of light was located exterior to the tubular portion. Illumination is accomplished *via* a solid butt-like block (A) of the plastic which is fused in an angle to the tubular portion. The light is transmitted through the walls of the tubular portion and refracted outwards at the roughened end (B), so that the cervix is vividly illuminated. The perfection of illumination is such that excellent photographs of the cervix have been obtained. The light source is a flash-lamp bulb connected to the "butt" of the instrument by a metal collar; this bulb is connected up to a small box battery by a length of strong rubber flex.



Length approximately 14 in.

Bore (internal) 1 in.

Since the original instrument was constructed a few minor improvements have been suggested by several veterinarians who have seen it in use. Thus, a later model is fitted with a shield or flange in order to prevent faeces entering the tubular portion.

Veterinarians who have used the instrument have unanimously reported on its efficiency for artificial insemination work and other procedures where direct, shadowless illumination of the cervix is necessary.

The speculum is made by Messrs. Vann Bros., Seymour Street, London, to whom I must express my admiration for their skill in the working of the plastic and for the construction of the instrument in spite of many difficulties. Unfortunately supplies are restricted at the present time.

I should also like to express sincere appreciation of the help given by Messrs. Holmes, Ottaway and Scorgie, of the Royal Veterinary College, and by Dr. A. Walton, of the School of Agriculture, Cambridge, in finding out the uses and limitations of the speculum.

*Description of an instrument exhibited at the meeting of the Central Veterinary Society held at the Conway Hall, Red Lion Square, W.C.1, May 7th, 1942.

CLINICAL COMMUNICATION

Colt Hooked by the Mandible

D. J. ANTHONY, M.R.C.V.S., D.V.S.M. (VICT.)
STOURBRIDGE

Subject.—Roan Hunter colt, eighteen months old.

History.—Found in field hanging from lower jaw by a hook and chain at one of the gates. The chain and hook had apparently been fixed on to the gate post and the colt in reaching its head up over the gate had become entangled with the hook, the ensuing struggle to free itself only resulting in the hook piercing the skin and flesh behind the body of the mandible (in the chin). The colt, when discovered, was "hooked" like a fish on a line, and after great difficulty was released. When seen later, the skin on the right side of the lower jaw hung loosely and a wound extended from the chin for some six inches along the inner side of the right mandible. For closer examination the animal was cast and secured. It was then apparent that the flesh had been completely torn from the inner aspect of the right side of the lower jaw and the hand could easily be inserted through the wound into the mouth alongside the tongue.

Treatment.—Fortunately the young animal had the necessary instinct to plunge its nose into a bucket of cold water provided immediately it was released and brought into a stable. Repeated applications of cold water had kept the wound clean. It was now thoroughly cleaned and disinfected. The skin was then sutured to close the wound, but immediately behind the mandibular body, in the chin, where the hook had done most damage, there was a gap about an inch in diameter which could not be sutured. Antiseptic treatment of the wound followed until eventually the lacerated flesh reunited—all but the hole in the chin, which, although it grew steadily less and less, did not completely close, and three months later a tiny trickle of saliva would be noticeable oozing from this wound.

Examination revealed the fact that whereas healing throughout the injured part along the cheek side was complete, the chin wound had gradually contracted; skin and mucous membrane had come together to form an opening about an inch long, a permanent fistula through which saliva would ooze during feeding.

An operation to close this "second mouth" was decided upon. The colt was cast and, under a local anaesthetic, the edges of the fistula were cut, a strip of skin and mucous membrane all round being removed so as to leave a raw surface. The wound was then sutured, and in due course healing, which was more rapid from the inner aspect, took place.

The colt is now free of blemish and sound once more.

Weekly Wisdom

"*. . . The profession has prizes to offer—prizes which I am convinced will become more valuable and more numerous when the profession takes its proper position in the State—but these can only be won by hard work. The day is past when all that a man required to dub himself a veterinary surgeon was to fire a horse, bleed a cow, and use a drenching horn. As Professor Macqueen has so aptly said, if you content yourselves with a servile adhesion to routine, with pouring drugs of which you know little into elaborately organised beings of which you know less, you will advance but a small degree beyond the miserable status of the straw-chewing, expectorating, expletive-using horse-doctor of bygone days. . . .*"—Professor Bottomley, Inaugural address, Royal Veterinary College, London, 1902.

ABSTRACTS

[MONTHLY HERD EXAMINATION FOR CONTROL OF BANG'S DISEASE, MASTITIS AND STERILITY. Case, C. H. (1942.) *Cornell Vet.* **32**. 135-140.]

The author, who is a general practitioner, visits 52 herds comprising 3,300 cattle once every month. Vaccination against *Br. abortus* is used only in heavily infected herds, the author considering that most herds can be cleared of infection in eight months if all cows are tested just before calving (and at the monthly intervals afterwards). Blood bottles and needles are left with the farmer, who takes samples and sends them to the laboratory (presumably the practitioner's own laboratory). There they are tested by the rapid method (slide agglutination) and any with a titre of 1 : 25 are removed.

All cows in milk are tested monthly for mastitis by the bromthymol blue test. Any abnormal quarter is sampled and the milk incubated for 12 hours, when a slide is made and examined. The leucocyte count and bacterial flora are recorded. The number thus examined was 1,218 during the last three months. A chlorine solution is used as a byre disinfectant and all infected cows are treated by novoxil or acriflavine injections.

Sterility is treated with douching all cases of retained placenta after removal with a mixture of 200 c.c. of 4 per cent. chlorine solution in two gallons of water. This is syphoned out after injection. If a cow returns to the bull three times she is examined and the ovaries treated, while the uterus is douched presumably with the chlorine solution. Pus, which had never been observed by the owner, is often observed in the return flow.

Cystic ovaries are often punctured through the vaginal wall with good results. Ascorbic acid (vitamin C) is being used for anoestrus cows and has already given favourable results in bulls. Semen is examined fresh and stained and the sheath douched with chlorine solution. Trichomoniasis is the greatest difficulty, but artificial insemination is valuable in this condition. Cows are believed to become immune to this infection.

[This article is of great value in showing what a practitioner can do and should be read in the original by interested practitioners in this country.—*Abstractor.*]

P. S. W.

* * * * *

[*STR. AGALACTIAE* IN UDDERS OF HEIFERS AT PARTURITION TRACED TO SUCKING AMONGST CALVES. Schalm, O. W. (1942.) *Cornell Vet.* **32**. 49-60.]

In a herd infected with contagious mastitis raw milk was fed to the calves and they were allowed to suck each others' teats. 5·72 per cent. of the heifers were infected when they first calved. In a similarly infected herd in which the calves were fed pasteurised milk and muzzled none of the heifers was infected.

Four calves were fed infected milk and allowed to suck each others' teats. One calved with a heavily infected udder, the only possible source of infection being the milk.

[Unfortunately no experiments were carried out in which infected milk was fed and the calves were not allowed to suck each others' teats. It is not certain, therefore, whether the infection was due to ingestion of infected milk or through the teat orifice by sucking, though the latter is the more probable.—*Abstractor.*]

* * * * *

[PREGNANCY TOXAEMIA IN EWES. Clark, R., and Groenewald, J. W. (1941.) *J. S. Afr. vet. med. Ass.* **12**. 97-102.]

The word "domsiekte," meaning "stupid sickness," is used by Dutch South African farmers for a condition of ewes occurring during late pregnancy and corresponding to the so-called "pregnancy toxaemia," "in-lamb ewe disease," or "twin-sickness" of this country. Early nervous symptoms may appear either as hyper- or hypo-sensitivity, but the final stages are usually listlessness and coma. *Post-mortem* examination usually shows fatty infiltration of the liver and fatty changes in the renal cortex, although in peracute cases lesions may be slight.

Since the condition can be experimentally produced in pregnant ewes by sudden reduction of food it is assumed that the disease is primarily a disturbance of the carbohydrate-fat metabolism induced by interruption of feeding. Prevention is therefore regarded as a matter of flock and pasture management, which should be designed to prevent any loss of condition over the last two months of pregnancy. Gravid ewes are peculiar in that a temporary cessation of feeding often leads to prolonged voluntary fasting, thus setting up the disease. Any sudden change of feeding or of climatic environment should, therefore, be guarded against.

The disorder was also observed in peracute form after digestive disturbance caused by feeding on young lucerne. Poisonous plants, by setting up paresis of the alimentary tract, may initiate the sequence of events leading to the disease.

With regard to treatment, rumenal atony should be corrected by a suitable tonic. Lentin, in subcutaneous doses of 1 mg., gave good results. Since hypoglycaemia is one of the common features, intravenous injections of glucose (10 gm. in 20 per cent. solution) are suggested, repeated at intervals of a few hours if necessary. A carbohydrate supplement is a good prophylactic, daily dosing with molasses being particularly useful as also combatting intestinal stasis. Contrary to expectation, protein food was best in getting the sheep to resume feeding, and meat meal can be given with good results. Injections of vitamin B_1 (3000 I.U. intramuscularly per day) had no effect in comatose cases, but the authors regard it as worth trial in conjunction with glucose treatment.

H. H. G.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Nov. 10th.—Annual Meeting of the Dumfries and Galloway Division, N.V.M.A., at Dumfries, 12.15 p.m.

Nov. 13th.—Meeting of the Sussex Division, N.V.M.A., at Brighton, 2 p.m. (informal luncheon, 1 p.m.).

Nov. 21st.—West Sussex W.A.E.C. Milk Production Demonstration at Chichester.

Nov. 20th.—Annual Meeting of the North Wales Division, N.V.M.A., at Rhyl, 1.30 p.m.

Nov. 26th.—Meeting of South Eastern Division, N.V.M.A., at Maidstone, 2 p.m.

* * * * *

The Veterinary Educational Trust

The first meeting of the trustees and council of the Veterinary Educational Trust, which aims at raising £1,000,000 to improve veterinary education facilities, was held on Friday of last week at the London School of Hygiene and Tropical Medicine. The Duke of Norfolk was elected President of the Trust and Chairman of the Trustees, and the Duke of Beaufort Treasurer, with Dr. W. R. Wooldridge, President, N.V.M.A., as Chairman of the Council of Management. Plans for future action were approved.

* * * * *

Farm Livestock Emergency Service

As has been previously announced, the Rural Areas Scheme of the National A.R.P. Animals Committee has been taken over by the Farm Livestock Emergency Service, a service which is in receipt of an annual grant from the Government for administrative purposes. The Executive Committee, under the chairmanship of the Duke of Beaufort, has met several times and has been going into various matters concerned with the smooth running of the organisation in the future.

The organisation consists mainly of voluntary workers falling into three categories:—

(*a*) Veterinary practitioners, organised under county veterinary officers, whose function in the new organisation will be mainly concerned with the giving of advice to farmers on the initial treatment of casualties among farmstock and their disposal when necessary.

(*b*) Animal stewards, usually men experienced in the handling of large animals. In the new organisation the National Farmers' Union of England and Wales and the War Agricultural Executive Committees of Scotland have agreed to organise the animal stewards. It is hoped that all those previously assisting the Rural Areas Scheme as animal stewards will continue to so act in the new organisation. In the main, and in order to reduce the amount of work required of the veterinary officers, the secretaries of the branches of the National Farmers' Union in England and Wales will organise the animal stewards and recruit additional personnel where necessary.

(*c*) The Ministry of Food Salvage organisation. The Ministry of Food is represented on the Farm Livestock Emergency Service and every effort is being made to ensure that slaughterhouse managers and the emergency slaughtering gangs of the Ministry will give all assistance possible to veterinary surgeons, animal stewards and local butchers.

Cards of appointment signed by the Chairman of the Executive Committee will be issued to veterinary surgeons and animal stewards

in the near future. They will also receive a supply of casualty report forms and a pamphlet detailing the duties of animal stewards.

In addition to the fact that the Farm Livestock Emergency Service has been set up jointly by the Minister of Agriculture and the Secretary of State for Scotland the new service has been recognised by the Ministry of Home Security as an approved organisation under Section 4 of Defence Regulation 79b. The Home Office has also given its recognition to the service and has notified Chiefs of Police throughout the country that they may shortly expect to receive from animal stewards applications for permission to slaughter under Regulation 79b.

The service is recognised by the Ministry of Pensions for war service injuries in so far as injuries are directly concerned with enemy action or when a veterinary surgeon or animal steward is injured by an animal, in the course of his duties in connection with the Farm Livestock Emergency Service. Injuries arising from road accidents, etc., which might take place when a veterinary surgeon or animal steward is on his way to attend to an incident on behalf of the Farm Livestock Emergency Service will not be covered for war service injuries, unless they can be shown to be connected directly with enemy action.

Arrangements are being made to continue the supply of petrol to veterinary surgeons and others for administrative purposes and for the supply of iron rations of petrol coupons for emergency work.

The Executive Officer for Scotland is Dr. Alex. Robertson, M.A., B.Sc., M.R.C.V.S., and for England and Wales, Dr. W. R. Wooldridge, M.Sc., M.R.C.V.S., and the Secretary for the whole organisation is Major W. H. McGowan. The offices of the Farm Livestock Emergency Service are at 29, Tavistock Square, London, W.C.1. Telephone: Euston 3805.

* * * * *

PERSONAL

Births.—Mair.—On October 24th, to Margery, wife of Alexander Mair, B.Sc., M.R.C.V.S., of "Natlands," Battenhall Road, Worcester, a daughter, Christina Seafield.

Pettett.—At the Ebberley Nursing Home, Barnstaple, on October 24th, 1942, to Ina (*née* Thurstans), wife of D. W. S. Pettett, M.R.C.V.S., a daughter (Jillian Thurstans).

* * * * *

Forthcoming Marriages.—Straiton—Harrison.—The engagement is announced between Mr. E. C. Straiton, M.R.C.V.S., son of Mr. and Mrs. G. R. Straiton, of Dalmuir, Dumbartonshire, and Marie Loraine, only daughter of Mr. and Mrs. S. Harrison, Shoal Hill, Cannock, Staffs.

Witherington—Grieve.—The engagement is announced between Douglas H. Witherington, M.R.C.V.S., only son of Mr. and Mrs. H. G. Witherington, Gosberton Clough, Spalding, and Christina G. Grieve, M.R.C.V.S., second daughter of Mr. and Mrs. G. Grieve, of Buccleuch, Hawick, Roxburghshire.

* * * * *

Marriage.—Ziffo—Ross.—On October 19th, 1942, the marriage took place of George Stephen Ziffo, B.Sc., M.R.C.V.S., of Chiswick, London, and Catherine Sutherland Ross, of Edinburgh.

* * * * *

Golden Wedding.—Members of the profession will wish us, in their name, to offer congratulations to Mr. and Mrs. David Pugh, of Burnewood, Bayleys Hill, Sevenoaks, on celebrating their golden wedding.

It was fifty years ago, on October 12th, 1892, that Mr. and Mrs. Pugh were married at Chevening Church, the Rev. Canon Hall Hall officiating at the ceremony. Mrs. Pugh, who comes from a well-known Lincolnshire family, was then resident in Chevening.

Mr. Pugh was for many years prominent in the district as a veterinary surgeon, retiring in 1922, when he was succeeded by his son, Major L. P. Pugh. During the time he was actively engaged in his profession Mr. Pugh rendered invaluable service to the R.S.P.C.A. and was also Inspector under the Ministry of Agriculture and the Kent County Council.

Mr. Pugh, who was Chairman of the Sevenoaks Gas Company for a number of years, has been associated with the Sevenoaks Water Works Company for many years and succeeded the late Mr. John White as Chairman.

A brother of Mrs. Pugh is Chaplain to United States ex-Service men in California.

* * * * *

R.C.V.S. OBITUARY

Ball, Francis A., 5, Railway Road, Ormskirk, Lancs. Graduated Edinburgh, July 22nd, 1885. Died October 21st, 1942; aged 80 years.

The late Mr. Ball was well known and held in high esteem over a wide area. Among the large company at the funeral, which took place on October 23rd at St. James's Church, Westhead, Lathom, were the following members of the veterinary profession: Dr. G. O. Davies (representing the Lancashire V.M.A.), Messrs. H. R. Hewetson, J. E. Kenyon, E. Shallcross and H. Sumner.

* * * * *

GENERAL OBITUARY

Mr. E. S. Tattersall

Mr. Edmund Somerville Tattersall, senior partner in the firm of Tattersalls, the auctioneers of Knightsbridge, died recently at his home in London at the age of 79. Mr. Tattersall was an owner and breeder of bloodstock, as well as being probably the best known auctioneer of racehorses in the world. He became part owner with Mr. Gerald Deane of the well-known training establishment at Manton when it came into the market shortly after the retirement of Alec Taylor.

* * * * *

ROYAL ARMY VETERINARY CORPS

The following announcements are made in the issue of *The London Gazette* dated October 20th, 1942:—

2nd Lt. A. W. Peyton (201786) from R.A., to be Lt. August 13th, 1942 (substituted for notification in *Gazette* (Supplement) dated August 4th, 1942). To be Lts.: William van Oppen Gray (246876), September 18th, 1942; George Baird Taylor (246714), September 28th, 1942.

In the issue of the *Gazette* dated October 27th, 1942, the following notifications are made: To be Lts.: 2nd Lt. J. F. C. Swan (246274), from R.A.S.C. (A.C.F. Section), October 29th, 1941; 2nd Lt. G. McElligott (146802), from Ind. Army; Capt. A. D. M. Laing (248009), from R.I.A.S.C.; Lt. A. R. Green (159115), from R.A., October 28th, 1942.

* * * * *

AGRICULTURE AND THE CURRICULUM

The recommendation that agriculture should be included in the educational curriculum alike of elementary schools and colleges is made by the National Farmers' Union in evidence submitted to the Luxmoore Committee. It is proposed that small holdings should be attached to secondary schools in the country, to be worked by the pupils, and that courses should be held in rural science. Evening classes in agriculture for those already working on farms in the daytime and camp holidays for those in other pursuits are suggested also. The union urges steps to revive village crafts. Another suggestion is that refresher courses should be given to all teachers at farm institutes and that salaries in rural schools should not be lower than in urban ones.—*Daily Telegraph.*

* * * * *

FOOT-AND-MOUTH DISEASE

Outbreaks of foot-and-mouth disease have been confirmed near Chard, Somerset, and at Tullibody, near Alloa, Scotland. On Monday last an outbreak of the disease was confirmed at Pembroke.

* * * * *

LEGAL NOTES

Milk Deficiency and Mastitis.—In view of the panel scheme introduced for the control of certain diseases in dairy herds, including mastitis, a decision delivered by Sheriff Garrett at Ayr recently is of special interest.

The case arose out of a charge against Mr. Thomas M'Farlane, farmer, Roan, Kirkmichael, for selling milk showing a deficiency in solids-not-fat below the legal standard. One part of the defence was based on the existence of mastitis. In his decision Sheriff Garrett said the whole problem of the effects of disease and other factors on the composition of milk offered a wide field for research and control. He was satisfied that the respondent had entirely discharged the onus placed upon him by leading evidence from which it could be reasonably inferred that the deficiency was due to mastitis in his herd. Accordingly he found him not guilty.

* * * * *

Flour used for Dog Food.—In a case heard recently at the Central Criminal Court, the Recorder, Sir Gerald Dodson, passed judgment on two companies and four private individuals who had pleaded "Guilty" to offences under the Food Regulations.

Shaw's Veterinary Products, Ltd., of Harrow, were fined £500 with £50 costs; Keevil and Keevil, Ltd., were fined £140 with £25 costs; Donald Hirst Shaw, 33, was sentenced to two years' imprisonment and ordered to pay £50 costs; Arthur Pye, 40, agent, was sentenced to 18 months' imprisonment; Harry Hearn, 41, butcher, was sentenced to 12 months' imprisonment, with a fine of £50; and Elsie May Robbins, 40, secretary, was sentenced to 12 months' imprisonment.

On the direction of the Recorder, Mrs. Doris Shaw, 32, secretary, was found Not Guilty and was discharged.

It was alleged by the prosecution that large quantities of flour were purchased for use in the form of sausage rusks for a purpose other than the manufacture or preparation of food, and that food had been wasted by using flour in the form of sausage rusks in the manufacture of dog food.

Shaw's, Ltd., of which company Donald Hirst Shaw was stated to be the director, manufactured a dog food called "Livabrex," and the company had no licence to use flour for that purpose.

The Recorder, delivering judgment, said it was obvious that Donald Hirst Shaw was prepared to make money at any cost and at any risk.

* * * * *

UNSOUND MEAT

At a recent meeting of the National Executive Council of the Meat Traders' Federation a letter was read from the Wrexham Association regarding the recent conviction of a member of the trade for selling a piece of beef which contained a tuberculous gland. The defendant had pleaded guilty on the advice of his solicitor, but the Association urged that the Federation should seek an alteration in the regulations so as to provide that when meat had been inspected by a local authority, if it should be subsequently found unfit for human consumption, a trader should not be prosecuted if he sold such unsound meat.

The facts as admitted in evidence were that the carcase had been passed as sound at the local abattoir, and that a side had been allocated to the butcher concerned.

When the purchaser's husband saw the meat which was in a pan ready to be put into the oven he decided it was abnormal, and in due course took it to the meat inspector.

The trader in his evidence at the police court had said that he did not know the meat was infected, but he did not inspect it as he was busy at the time. It was, however, stated that he took it for granted that the meat was fit for human consumption when it has been passed by the inspectors.

The Council felt that the Association were evidently under the impression that once meat had been passed as fit for human consumption, then no matter what condition might be disclosed on cutting up the joints, the trader had no responsibility in the matter.

That, however, was not the law; the Food and Drugs Act made it perfectly clear that any person who sold meat which was unfit for human food was guilty of an offence.

The Secretary was instructed to write and explain to the Association that the Council could not put forward a suggestion to the Ministry of Health that once a carcase or side had been passed by an inspector the trader had no further responsibility in connection therewith, unless it could be clearly shown that he had taken all reasonable precautions to ensure that the meat was fit for food at the time he sold it.—*Meat Trades Journal.*

* * * * *

HIGHLANDS AND ISLANDS VETERINARY SCHEME

A strong plea for a flat rate charge to enable farmers and crofters in the Isles to benefit to the fullest extent under the Highlands and Islands Veterinary Services Scheme was made by Mr. D. MacKechnie, Jura, at a meeting of Argyll County Council at Oban. Mr. MacKechnie pointed out that in the Islay district which included the island of Jura, Colonsay and Oronsay, many people had to pay the maximum rates permitted under the scheme to cover travelling expenses of officers by sea and road. This meant additional outlay of £1. They were at a disadvantage compared with farmers and crofters on the mainland. It was the feeling of the meeting that the matter should be raised with the Department of Agriculture after the scheme has been in operation for a reasonable time.—*Scottish Farmer.*

* * * * *

SLIPSHOD METHODS OF MILK PRODUCTION

In his most recently issued monthly report on milk and dairy inspection, Mr. J. A. Flynn, Chief Veterinary Officer for County Dublin, states that most of the dairies inspected were in a most insanitary condition. It had not been found possible to restore the high standard of cleanliness which was habitual before the outbreak of foot-and-mouth disease. Inadequacy of inspection, due to fuel shortage, allowed dairymen to lapse into slipshod methods of milk production. Power pumps, installed for washing out byres, etc., could not be used owing to fuel shortage. In pasteurising plants there had been also shortage of fuel, and if this became more acute it might not be possible to pasteurise milk.

SCHEME FOR THE CONTROL OF DISEASES OF DAIRY CATTLE

STATEMENT SHOWING THE NUMBER OF UNDERTAKINGS NOTIFIED TO THE MINISTRY OF AGRICULTURE DURING THE FOUR WEEKS ENDED OCTOBER 31ST, 1942

County	Undertakings Notified		Total Undertakings		
	During Four Weeks ended October 31st	Received during period June 1st to October 3rd	Number	Number of Cattle	
				Cows	Heifers
ENGLAND					
Bedford	1	24	25	638	429
Berks	10	40	50	1,955	1,451
Bucks	8	31	39	1,026	750
Cambridge	1	9	10	203	99
Chester	42	219	261	8,987	2,951
Cornwall	3	—	3	44	57
Cumberland	5	20	25	695	612
Derby	28	109	137	4,258	2,328
Devon	13	77	90	1,553	943
Dorset	3	28	31	1,036	663
Durham	17	137	154	3,681	1,098
Essex	14	118	132	5,549	3,191
Gloucester	3	52	55	1,828	986
Hampshire	32	163	195	6,068	3,630
Hereford	3	13	16	267	165
Hertford	4	40	44	1,445	912
Hunts	1	5	6	177	122
Isle of Ely	—	1	1	1	8
Isle of Wight	—	4	4	55	15
Kent	8	63	71	1,468	865
Lancs	20	104	124	3,023	890
Leics	10	35	45	1,186	794
Lincs (Holland)	—	4	4	45	11
Lincs (Kesteven)	—	12	12	135	80
Lincs (Lindsay)	12	34	46	846	377
Middlesex	1	5	6	289	130
Norfolk	15	114	129	3,846	2,525
Northants	5	41	46	1,255	981
Northumberland	2	38	40	1,353	674
Notts	3	54	57	1,372	714
Oxford	1	19	20	541	600
Rutland	2	6	8	145	102
Salop	14	151	165	5,365	2,445
Soke of Peterborough	1	—	1	37	31
Somerset	10	75	85	2,311	867
Staffs	15	102	117	3,541	1,750
Suffolk, E.	8	49	57	1,512	1,118
Suffolk, W.	6	25	31	645	452
Surrey	13	63	76	2,144	1,012
Sussex, East	12	89	101	2,693	1,418
Sussex, W.	7	61	68	1,968	1,189
Warwick	5	73	78	2,087	1,357
Westmorland	2	15	17	467	537
Wilts	2	40	42	1,809	1,020
Worcester	2	108	110	2,428	1,208
Yorks, E.R.	11	33	44	780	398
Yorks, N.R.	7	61	68	1,370	746
Yorks, W.R.	19	143	162	4,191	1,490
WALES					
Anglesey	1	12	13	225	96
Brecon	1	2	3	50	22
Caernarvon	6	81	87	1,461	751
Cardigan	—	12	12	170	119
Carmarthen	11	137	148	2,748	1,414
Denbigh	3	37	40	828	410
Flint	9	66	75	1,635	776
Glamorgan	8	48	56	909	335
Merioneth	—	8	8	100	72
Monmouth	4	17	21	535	302
Montgomery	1	7	8	180	133
Pembroke	4	61	65	1,278	819
Radnor	—	—	—	—	—
TOTALS	449	3,195	3,644	99,037	51,440

Note.—Of the total 3,644 undertakings notified to date, 956 are for 1 year, 218 are for 2 years, and 2,470 are for 3 years.

SCOTLAND County	Total Undertakings		
	Number	Number of Cattle	
		Cows	Heifers
Aberdeen	7	389	142
Angus	6	210	103
Argyll	2	22	46
Ayr	3	101	109
Banff	1	75	20
Dumfries	3	203	154
East Lothian	3	39	6
Fife	2	84	84
Inverness	1	43	49
Kirkcudbright	2	138	103
Lanark	1	32	34
Midlothian	1	44	69
Nairn	1	14	—
Perth	3	154	74
Stirling	8	284	232
Sutherland	1	41	29
Wigtown	4	408	191
TOTALS	49	2,281	1,445

Duration of Undertakings: 1 year, 17; 2 years, 2; 3 years, 30.

THE MAKINGS OF A GREAT CAREER IN RESEARCH

[Contributed]

In the obituary article on the late Sir William Bragg which appeared in *Nature* on March 28th last, there occurs in the first paragraph a short disquisition the general relevance of which one is sure will be readily appreciated by those who are now exercising their minds upon the matter of planning for "research" within our own profession. It is reprinted below:—

"Bragg's first research paper was published in 1904, when he was 42 years old. This fact is not without significance for an understanding of his work and character. He had gone out to Australia as a young man of 24, without any experimental experience and without, indeed, any real training in physics—he was fond of telling how he learnt the elements of the subject on the boat as he travelled to take up his appointment as professor of mathematics and physics at Adelaide. He soon showed a liking for experiment, and set up the first X-ray tube to operate in Adelaide, possibly the first in Australia. He made a name as a teacher and as a man of great social gifts, and might have spent a pleasant and useful life without ever carrying out any original investigations, for in those days 'research' was not a professional necessity. It was not until he had had long experience in expounding the fundamentals of his subject, and in so doing had developed a keen critical sense for what was important and what was trivial, that he set out to discover something about radioactivity, a subject that had stirred his active curiosity when he was preparing an account of what had been done in this field. So well, however, had he taught himself in those years of preparation that his first paper, on the range and ionisation of alpha particles, is a classic. Within three years he had been elected a fellow of the Royal Society."

At least four points emerge for reflection in contemplating the beginnings of this great career in research. First, even in the very older science of physics, "research" had not become recognised as a necessity in the daily work of a professor of his subject till within recent years. We need not, therefore, lament unduly over the fact that there has been a grave lag in this respect at our veterinary teaching institutions, especially when we bear in the mind that the opportunities for carrying out research have been few. Secondly, an intensive training at an early stage of the young graduate's life specially designed to fit him for a career of research is not an essential to secure from him the greatest or most fruitful discoveries. On the other hand, such intensive training may readily lead to mental fatigue in early life. The unhurried preparaion undertaken by Bragg assured him of a thorough understanding of his subject throughout its whole range before he began specialising, while his cultivation of social qualities, often so deplorably lacking in laboratory workers, enabled him during the productive stages of his research career to collaborate with an easy grace with younger men. In some of our most outstanding older men an inability to encourage younger men to find their own feet has been sadly conspicuous to those who have had the misfortune to work intimately with them. Thirdly, it can never be impressed too strongly on young graduates that there is need to hold themselves in rein if their aim is to achieve lasting distinction in research. Great anxiety to express themselves in print at an early stage of their lives may have an effect upon their reputations the very reverse of what had been intended. Not only in research but also in other fields do we find examples of men who have eventually made great reputations by not publishing their first efforts until after a period of long preparation. One example that readily comes to mind is that of Arnold Bennett, who published his first work, *The Old Wives' Tale*, after long preparation when he had reached about the same age as Bragg at the time when the latter published his classic first paper. Fourthly, and obviously, the stimulus to great achievement in research, as is evident from the careers of three famous modern British physicists, J. J. Thomson, Rutherford and Bragg, has not been derived from special Government committees or any like bodies for which there has recently been much clamour, but from the unfettered urges of gifted individuals, who socially have been very decent men, working in the peaceful and congenial atmospheres of various universities, and whose lives have not been made to conform to those of Civil Service clerks.

* * * * *

MINISTRY OF AGRICULTURE NEWS SERVICE

Surplus Straw

Trodden by Sheep to Give Manure.—Surplus straw has been put to good use by Mr. R. V. Bradburn, of Bridgnorth. Seventy to eighty sheep, kept in a straw fold, were fed mainly on kale, swedes and mangolds. The fold, about 20 × 30 yards, was well littered with layers of straw, each covering weighing approximately one ton. One cwt. of sulphate of ammonia was spread evenly over each layer before the next was put down.

Altogether some 20 tons of surplus straw were converted into about 70 tons of well-rotted farmyard manure. Subsequently it was carted from the fold, spread and ploughed in on the same field. This system of outside folding has much in its favour. Large quantities of straw can be turned into manure where it is most needed and costs of labour and carting are reduced to a minimum.

* * * * *

Chiropody for the Cow

Careful attention to cows' feet will never go unrewarded. Heavy milking and feeding, and the fact that she was not hardy, are often given as reasons for a cow "going off her feet." In many cases the real cause is neglect of overgrowth of the hoof or persistent foot-rot causing lameness and chronic stiffness. The slightest sign of lameness should receive immediate attention. Hoof-paring instruments and Archangel tar must be regarded as part of the equipment of the cowshed.

* * * * *

Milk for Babies—Gruel for Calves

When feeding National Calf Starter, strict attention must be given to the mixing directions. Having taken out the required quantity of the meal it should be mixed with just sufficient cold water to give a thin lumpless paste. Additional cold water is then added up to 2 quarts for each lb. of meal that has been used. Stir well and *boil for at least two minutes.*

The meal has now become a gruel. If the mixing is to be used at one feed, thin and cool by adding yet another two quarts of water for each lb. of meal and once more stir well. The gruel is now ready for adding to milk, or for feeding without milk to older calves.

Should sufficient gruel have been boiled for two feeds, half must be thinned and cooled for the first feed, the remaining half thinned and warmed by adding two quarts of hot water for each lb. of meal, when required for the second feed.

By using National Calf Starter farmers can add 20 gallons per calf to the supply of milk for human consumption. They will also be able to obtain an extra 84 lb. of feeding-stuffs for each additional 20 gallons of milk sold. This will be useful for feeding to growing heifers.

* * * * *

A Mixture for More Milk

In the dairying districts of England winter beans and grey winter oats provide excellent food for dairy cows. The mixture of bean and oat straw makes a more nutritious fodder than oats alone and a better fodder than bean straw alone. The resultant grain can be ground into meal for stock-feeding, 4 lb. being sufficient for the production of one gallon of milk. Heavy crops can be grown, since there is no danger of lodging.

* * * * *

Ignore the Man Who has Failed

Advice to Silage Makers.—Mr. A. G. Liddle, farming at Delves Ridge, Darley, Harrogate, has given excellent advice to those who are undecided about making silage. "Go and see the actual process carried out by someone who has made a success of the job and ignore altogether the man who has failed. His failure can usually be traced to the non-observance of the few simple rules. To make good silage is quite easy and to make bad silage is just as easy."

* * * * *

Feeding Silage

Easy Come Must Not be Easy Go.—Special economy should be exercised with high-quality silage made from young grass. This is a concentrate and will replace dairy cake in the production ration. It should be fed to dairy cows at a rate of 20 lb. to produce one gallon milk, and not used as roughage. For growing stock, rations of silage should be gradually increased to reach 30 lb. at 5 cwt. liveweight and 40 lb. at 8 cwt., replacing 4½ lb. and 5½ lb. of cereals respectively and giving extra protein to the ration.

To prevent any waste in feeding, a standard amount should be weighed out as a basketful or a forkful, so that the amount fed can be roughly estimated. An occasional check will make for economy.

* * * * *

Benefit of the Rains

More Grass for Silage and Winter Milk.—In many parts the late rains have created a flush of grass—more than sufficient for grazing stock. Unless it is made into silage before the frosts cause it to wither and die, the food value of this grass will be lost.

Ensiling will preserve the grass in its present palatable and

nourishing condition and will help to maintain winter milk in the months when feeding-stuffs will be badly needed.

. . . . .

The Rabbit Keeper

Rabbits: Breeding Does Need a Rest When Moulting.—A rabbit keeper has complained that advice on rabbit keeping underestimates the possibilities of home meat production. But another breeder points out that four litters, averaging nine, from a breeding doe in one year is the worst propaganda he ever heard. Three litters in one year, averaging five per litter, is nearer the mark. The time from mating to weaning is three months, so four litters a year means the does are never rested. After rearing five or six young, the doe is entitled to a well-earned rest.

All rabbits moult every year; this sometimes takes from six to eight weeks, and during this time a doe should never be bred from, as it is taxing her strength too much to grow a new coat and rear young at the same time.

. . . . .

No Overcrowding.—Overcrowding is the most frequent source of trouble with new rabbit keepers, declared a specialist in a recent broadcast. For a medium-sized breeding doe, he said, the hutch should not be smaller than 4 ft. long.

Turning to feeding, he emphasised that there was a world of difference between succulent, juicy greenstuff and poor quality rough grass. Good food and plenty of room means large litters raised to healthy maturity. Poor food leads to puny youngsters not worth raising.

Plants before the flowering stage are better than after the seeds have started to form. At the moment we can make use of asters, golden rod, hollyhocks and Michaelmas daisies from the flower beds, and prunings from fruit trees, as well as raspberries and currant bushes. But not all the rough stems and twigs are eaten, so don't think that 1—2 lb. total weight of this stuff is a complete meal.

. . . . .

Winter calvings mean more milk over the year.

They also mean careful planning of crops for feeding-stuffs.

Every dairy farm should have an adequate winter supply of succulent green food, grass, silage and roots.

The greatest of these, after grass, is silage.

There is nothing like good grass for restoring an animal that is run down or stimulating the natural functions of production and reproduction.

. . . . .

Given room for breeding and a good supply of food and water, a pair of rats and their offspring can produce 880 in a year.

Every rat in the hedgerows, in ricks, barns, cowsheds or stables, is "subsidised" by the farmer to the extent of at least 10s. a year.

Damage to corn caused by rats, whether in stacks or sacks, is an invisible export that has to be replaced by a visible import. This means shipping space and unnecessary risk of life.

* * * * *

MORE AGISTMENT NEEDED

Agriculture's productive effort is amazing, and is beginning to impress the general public, but it is by no means as yet playing its full part. Thousands of acres are contributing next to nothing to the war effort. There is hill country and down country, some portions capable of providing only summer keep, others only autumn and winter keep, according to geographical situation. If agriculture is to go all-out there must be closer links between upland and lowland. No good just bawling at people to stock their vacant lands. There must be a national agistment scheme.—*Farmer and Stock-Breeder.*

* * * * *

PUTREFACTION IN CATTLE HIDES

The best method of drying hides, writes Dr. D. Jordan Lloyd (*Nature*, October 10th, 1942), is to lace them flat in a frame and dry them with access of air to both sides. Some delay between flaying and the suspension of the hide for drying is inevitable. Commercial practice has allowed this delay to extend to several hours, sometimes to one to two days. Experiments were, therefore, carried out at Kano in Nigeria and at Isiolo and Mombasa in Kenya ("Results of Delayed Drying Trials in Nigeria and Kenya," *Bull. Imperial Institute.* **40**. No. 2; 1942). These three places represent a series of conditions of increasing atmospheric humidity and, to a less degree, increasing mean shade temperature, Kano having considerably the driest and slightly the coolest mean shade temperature and Mombasa the wettest and warmest.

In the experiment at Kano the hides were divided into two lots; one lot was given an arsenical dip immediately after flaying, the other lot was given an arsenical dip at the end of the delay period. Arsenical dips, if sufficiently strong, have some bactericidal effect. During the delay period the hides were folded hair out and left in the sun. Drying was in the sun. The dried hides were shipped to England and tanned for sole leather. The hides arsenicated before delay from the 8- and 16-hour periods showed no grain damage. Hides arsenicated before delay but left for longer periods and hides arsenicated after delay all showed slight grain damage in the finished leather. Except for this superficial damage the hides all proved to be sound. There was no damage due to Dermestes beetles.

In the experiments at Isiolo and Mombasa the experimental hides were divided in the line of the backbone, one side suspended for drying within two hours of flaying, the other folded and put in the sun for delay periods up to 32 hours. Drying was in the sun. In these hides there was a striking difference between the control and those with delayed drying. All the control half-hides were perfectly sound; the delay half-hides showed varying degrees of putrefaction, worse in the Mombasa hides than the Isiolo hides and increasing with the length of delay. All the control hides were free from damage by Dermestes beetles; the delay hides showed considerable damage both on the grain and in the carium, increasing with the degree of putrefaction. It should be noted that delay and control half-hides were shipped in the same bale. Although considerable putrefaction occurred in some cases it is interesting that the effect on the hide was strictly local. Sole leather from the damaged hides compared with sole leather from the control hides gives similar figures as regards resistance to abrasion, apparent density and water absorption. Nevertheless, it was proved that delay between flaying and drying causes considerable putrefactive damage, especially in a humid climate.

* * * * *

OUR FOREIGN FRIENDS

Our outlook has undergone many violent changes during the past three years. For example, in 1939 the majority of us would have strongly opposed any suggestion that pharmacists possessing only foreign qualifications should be accorded an equal status with men registered here with our own Society. How different is the position to-day! Instead of welcoming merely a handful or so of foreign pharmacists, we would gladly have with us a very much larger number. Whilst they are in the country they are working against Nazi Germany; if they had had to remain at home, they would have been forced to work against us. It has been shown, time and time again, that in this war the question of man-power is all important. Every doctor, master-mariner, surveyor, chemist, pharmacist, and, indeed, every skilled worker who comes to this county is an asset to our war potential.—*Pharm. J.*

* * * * *

Wallis Hoare's Veterinary Materia Medica and Therapeutics—6th Edition

Erratum.—Page 490, line 8 from bottom, for "Aquam ad C.ss." read "Aquam ad C.i."

* * * * *

The Society of Chemical Industry has formed an Agricultural Group with Sir John Russell as Chairman. At the first meeting, on November 3rd, at the London School of Hygiene, Dr. G. H. Bates, Principal of Penkridge Farm Institute, lectured on "Increasing the Food Output of Great Britain."

* * * * *

Under the auspices of the Royal Sanitary Institute, this year's Benjamin Ward Richardson Lecture (founded by the Model Abattoir Society) will be delivered at the Institute on Wednesday, November 25th. The lecturer will be Lieut.-Colonel D. J. Anthony, M.R.C.V.S., D.V.S.M., whose subject will be "The State of Meat Inspection in Britain at War." The chair will be taken by Sir William J. Collins, Vice-President. Those proposing to attend are requested to notify the Secretary of the Institute, 90, Buckingham Palace Road, S.W.1, not later than November 18th.

* * * * *

The Ministry of Agriculture announces that it is prepared to issue licences under the Imported Cattle (Restriction on Use) Orders allowing the importation into Great Britain from Eire during November and December, 1942, only, of a limited number of bulls. This concession is being made to ensure an adequate supply of young bulls of dairy type for immediate service for milk production in the winter of 1943-44. Applicants are reminded that a licence is necessary under the Improvement of Livestock (Licensing of Bulls) Act, 1931, to keep a bull imported into Great Britain from Eire. Application for such licence should be made in the usual way as soon as possible after the bull has been imported.